

REMARKS

Claims 1-17 are pending in this application. Claims 1, 2 and 5 have been amended herein. All claims find full support in the original specification, claims, and drawings. No new matter has been added.

In the Office Action mailed on June 11, 2008, claims 1-17 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Seidel et al. (U.S. 6,658,005) in view of Fong et al. (U.S. 6,760,860). Applicants respectfully traverse this rejection.

Claim Rejections – 35 U.S.C. § 103(a)

The Examiner rejects claims 1-17 under 35 U.S.C. 103(a) as allegedly being unpatentable over Seidel et al. (U.S. 6,658,005) in view of Fong et al. (U.S. 6,760,860). Applicants respectfully traverse this rejection.

Exemplary embodiments of Applicants' claimed invention provide methods and devices comprising unique combinations of method steps and features, respectively, including, *inter alia*, an apparatus for use in a mobile communication system that simultaneously transmits a control message over a control channel and data over a data channel, wherein the apparatus supports hybrid automatic repeat request (HARQ), the apparatus comprising: a physical layer for receiving the control message and the data from the control channel and the data channel respectively and for decoding the received control message and data; and a physical layer's HARQ controller for processing a result of the decoding of at least one of the received control message and data and for controlling the physical layer according to a result of the processing; wherein the HARQ controller performs an operation of a MAC layer (see Applicants' independent claim 1).

Seidel et al. does not disclose, teach or suggest such unique combinations of features or method steps.

The Examiner alleges that Seidel et al. discloses processing a result of the decoding of at least one of the received control message and data and controlling the physical layer according to a result of the processing (citing col. 7, lines 26-28 of Seidel et al.). Applicants respectfully disagree with the Examiner's analysis. The Examiner should note that col. 7, lines 26-28 of Seidel et al. discloses that the mobile station knows exactly the beginning of the DSCH frame and will receive and decode the PDUs on the DSCH. Col. 7, lines 35-37 of Seidel et al. discloses sending ACK and NACK messages to the transmitter. However, nowhere does Seidel et al. disclose anything about processing a result of the decoding of at least one of the received control message and data and controlling the physical layer according to a result of the processing.

The Examiner argues that the decoding step of the sequence numbers by the mobile station in col. 7, lines 26-28 of Seidel et al. corresponds to the step of processing a result of the decoding of at least one of the received control message and data. The Examiner further argues that transmitting ACK and NACK messages according to the implemented RLC protocol in col. 7, lines 35-37 of Seidel et al. corresponds to the step of controlling the physical layer according to a result of the processing. Applicants respectfully disagree with the Examiner's analysis. Applicants submit that the decoding step of the sequence numbers by the mobile station and the step of transmitting ACK and NACK messages according to the implemented RLC protocol in Seidel et al. are not related and do not meet the limitation of a physical layer's HARQ controller for processing a result of the decoding of at least one of the received control message and data and controlling the physical layer according to a result of the processing (see Applicant's independent claim 1).

In Col. 7, lines 26-28, Seidel et al. recites "The mobile station hence knows exactly the beginning of the DSCH frame and will receive and decode the PDUs on the DSCH (step 270) sent in step 250". The above recitation of Seidel et al. merely

discloses that the mobile station knows exactly the beginning of the DSCH frame and will receive and decode the PDUs on the DSCH. However, it fails to teach or suggest that the result of decoding the sequence numbers is used to decode PDU as the Examiner asserts. Therefore, Seidel et al. fails to teach or suggest processing a result of the decoding of at least one of the received control messages and controlling the physical layer according to the result of the processing as described in exemplary embodiments of the present invention. Furthermore, Seidel et al. fails to disclose at least two HARQ state machines for receiving state information from the physical layer and for determining a state transition to the next state and state function section for controlling the state transition of the HARQ state machine depending on the result of determining the state transition.

The Examiner should note that the processing step recited in claim 1 of the instant application is directed to processing a decoded result for controlling a physical layer later on, so it should be distinguished from the decoding operation of Seidel et al. The feature of transmitting ACK/NACK message in Seidel et al. is merely to inform a transmitter whether or not receiving a data, which is different from the claimed invention in controlling a physical layer.

The Examiner acknowledges that Seidel et al. fails to disclose that a HARQ controller performs an operation of a MAC layer. The Examiner then further alleges that Fong et al. discloses this limitation (citing col. 5, lines 9-18 of Fong et al.). Applicants disagree with the Examiner's analysis. Fong et al. discloses that the protocol layer operations are compliant with one of a number of various standards, which typically include both layer 1 (physical layer) and layer 2 (e.g. Radio Link Protocol) components, wherein both layers support ARQ operations, as disclosed in col. 5, lines 9-18 of Fong et al. However, nowhere does Fong et al. disclose anything about a HARQ controller performing an operation of a MAC layer, as recited in independent claim 1.

Referring to col. 5, lines 9-18 in Fong et al., it fails to teach or suggest a MAC layer. Furthermore, HARQ and ARQ are different from each other. Therefore, it is unreasonable to assume that merely supporting ARQ in a communication system

essentially means that the system also can support HARQ.

Col. 5, lines 9-18 of Fong et al. discloses that “The protocol layer operations of Fig. 2 are compliant with one of a number of various standards, e.g., 1Xev, HSDPA, or another various standards. These standards will typically include both layer 1 and layer 2 components. While layer 1 is typically referred to as the physical layer, layer 2 is referred to using various terms, the particular term, e.g., Radio Link Protocol (RLP), etc., used dependent upon the standard. The teachings of the present invention may be applied to any operating standard in which layer 1 and layer 2 both support ARQ operation”.

In other words, the corresponding part of Fong et al., as the Examiner pointed out, discloses that the protocol layer operations are compliant with one of a number of various standards and include 2 layers (i.e., a physical layer and Radio Link Protocol), in which ARQ operation is supported. However, it fails to teach or suggest any particular structure of HARQ controller and the HARQ controller for performing an operation of a MAC layer as disclosed in exemplary embodiments of the present invention.

In addition, the Examiner asserts that all the HARQ operation is referred to ARQ operation. However, the HARQ operation performs error correction as well as ARQ operation, and therefore, all of the systems for supporting ARQ are not capable of supporting HARQ. Thus, a disclosure of supporting ARQ does not always mean supporting of the HARQ.

Applicants submit that Seidel et al. and Fong et al., alone, or in combination, do not disclose, teach or suggest a physical layer’s HARQ controller for processing a result of the decoding of at least one of the received control message and data and for controlling the physical layer according to a result of the processing; wherein the HARQ controller performs an operation of a MAC layer (see Applicants’ independent claim 1). In the “Response to Arguments” section of the final office action mailed on June 11, 2008, the Examiner states that one cannot show nonobviousness by attacking references individually where rejections are based on combinations of references. Applicants submit, however, that it is proper to attack each applied reference individually if the Examiner has misinterpreted its teaching or lack thereof.

Neither Seidel et al. nor Fong et al. alone, or in combination, disclose, teach or suggest such unique combinations of features or method steps discussed above.

Accordingly, Applicants' independent claim 1, as well as the dependent claims 2-17 (which incorporate, by reference, all of the features of their respective base claims) are distinguished from both Seidel et al. and Fong et al. at least for these reasons.

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Conclusion

Reconsideration of the above-identified application and allowance of claims 1-17 are respectfully requested.

In view of the above, it is believed that the application is in condition for allowance and notice to this effect is respectfully requested. Should the Examiner have any questions, the Examiner is invited to contact the undersigned at the telephone number indicated below.

Respectfully submitted,



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